

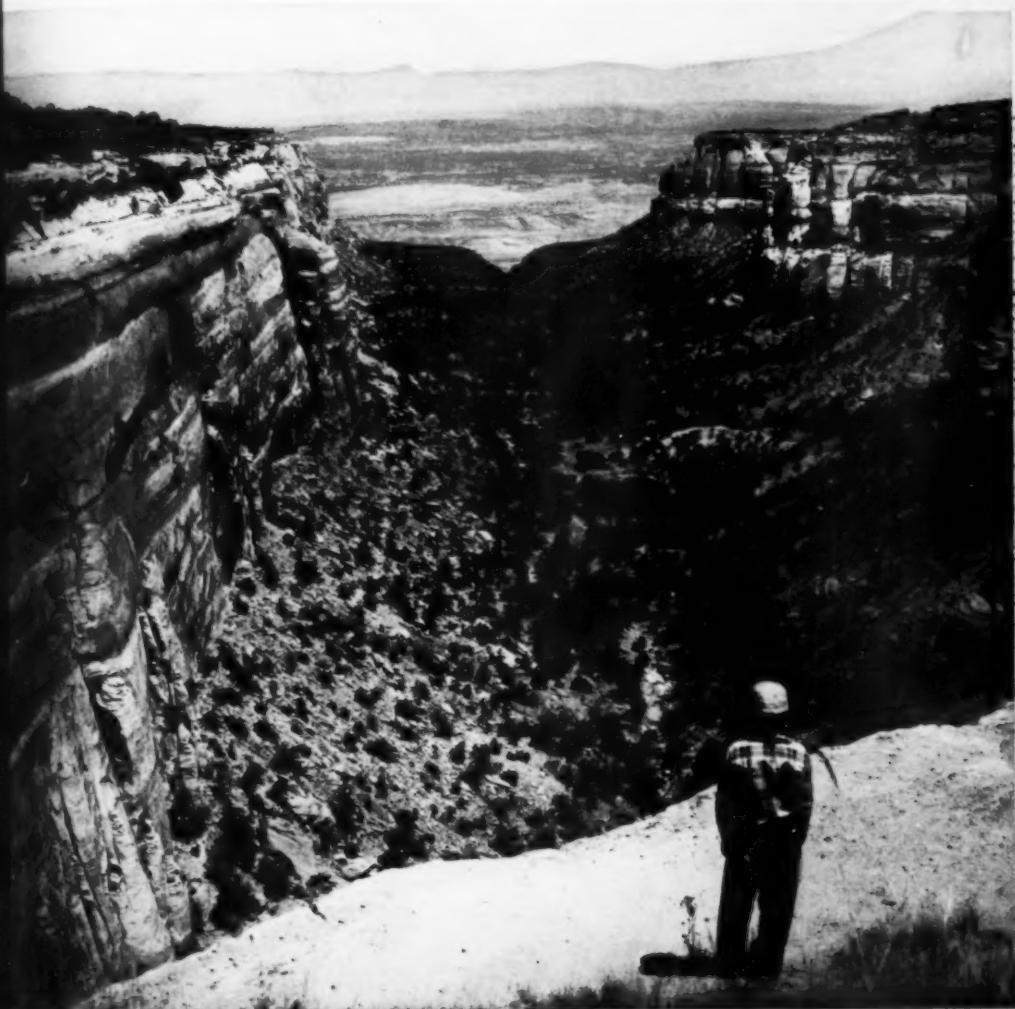
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IN COLORADO NATIONAL MONUMENT—Page Twenty-six

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If we are to go on producing great men and women it will be necessary to preserve our wild places undisturbed. Outdoor life builds character. Scenery should be used and owned by the people and perpetuated as national parks, for parks best serve all people and make best use of scenery . . . the nation that destroys its natural beauty is doomed.—ENOS A. MILLS.



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guarding America's heritage of scenic wilderness

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DEVEREUX BUTCHER, Editor

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NATIONAL PARKS MAGAZINE, formerly National Parks Bulletin, has been published since 1919 by the National Parks Association. It presents articles of importance and of general interest relating to the national parks and monuments, and is issued quarterly for members of the Association and for others who are interested in the preservation of our national parks and monuments as well as in maintaining national park standards, and in helping to preserve wilderness. (See inside back cover.) School or library subscription \$2 a year.

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National Park Service

Organ pipe cactus.

Organ Pipe Cactus National Monument

By CAMILLA ANDERSON, Member
National Parks Association

WERE you ever pursued by a rainbow?

Under a sky that smiled through happy tears, we drove in and out of showers, drizzles, downpours; behind us, now dim, now bright, imperfect, then almost full circle, was a wreath of spectrum. Sometimes it came close, then lagged, faded. Indigo velvet islands floated northward on a blue ocean of sky. A golden craft in the west spread a fan of luminous Jacob's ladders. The air, heavy with unaccustomed moisture, held fragrant odors of earth and vegetation. The desert was changing before our eyes. Rain was restoring to rocky slopes the colors snatched away by an envious sun. The mountains turned from brown and tan to russet and pink. Saguaro wearing waxen flowers swelled like sponges. Ocotillo wands turned green and waved their freshly cleaned bright red blossoms.

Between showers we stopped at a small wash filled with smoke trees, mere puffs of gray shade now, but promising to put out bluish-violet flowers. A cardinal posed on the stark branch of a small dead tree. Creosote bushes everywhere had lost their listlessness, and shone lacquered green. We knew that, opportunists as they are, in a few days they would be covered with tiny yellow cups. In the wash and farther up the slope, huge yellow bouquets of flowers like sweet peas were held aloft by the palo verdes' green branches. From this low point the jagged Ajo Mountains to the east had taken on height, reaching copper fingers toward painted clouds. In the west, the sun set the clouds afire, and they burned purple and crimson. The fire spread eastward, and the heavens turned roseate, and finally flame red.

The winter visitor to Arizona finds himself so pleased that he questions the advisability of traveling farther to see "just some

more desert." Does the traveller think the desert he has crossed to reach the monument is primeval wilderness? Outside the 516 square miles of this national monument, the desert has been exploited by white man, the greater part of its tree growth removed for use as timber or firewood, the edible grasses, flowers, and shrubs gone, consumed by domestic animals, the few inedible varieties broken and scraggly. A day's round-trip from Phoenix, Tucson, or Yuma, into the monument is rewarding, for there you will see trees that have been protected since 1937. Their profusion, variety, and height never fail to astonish.

There are good highways to and through Organ Pipe. You may visit this area of primeval desert by journeying west from Tucson by way of Sells, or by going south from Gila Bend, on U. S. Highway 80. From Gila Bend to Tucson, it is 180 miles. A paved highway goes almost due south through the monument, crosses the Mexican border at Sonoyta, and continues on beyond the monument, sixty-five miles to Rocky Point, *Punta Penasco*, on the Gulf of California. From Gila Bend to Ajo, it is forty-five miles; from Ajo to monument headquarters, thirty-three miles. From Sonoyta, a good dirt road leads westward and skirts the fenced border to Quitobaquito at the southern tip of the Growlers. Patrol truck trails lead north on both sides of the range. A scenic circle drive south and west of headquarters gives the sightseer a sample of the Puerto Blanco mountains and the La Abra Valley. Other dirt roads beckon the adventurous, but, like the several tentacles of the Camino del Diablo, these may appear better on the map than in reality. "Ask the ranger" before you try them; and be sure to let someone know where you are going. Dripping Springs, practically

in the center of the monument, is approached by a road, but there are no signs, and one can hardly find the springs without help. A good dirt road leads up to Alamo Canyon in the Ajo Mountains. The canyons have precipitous walls, and many parts of the ranges are almost inaccessible. Accommodations are available at Ajo. Necessities may be purchased at the border village of Lukeville. Sonoyta has never realized that it is a border settlement, and remains charmingly Mexican. Excellent Mexican food can be had there.

On most winter days, the thermometer reaches 70°, and winter nights seldom go lower than 40°. If it rains at all in winter, the showers are gentle. Hard winds and dust storms do not occur at this season, but there is usually a steady breeze. If it is hot, it is not humid. This region has the lowest relative humidity in the United States. Does it sound like a bit of heaven? For eight months of the year, it is, indeed. But Ari-

zona is known as "the land of contrasts," and during the other four months. . . . However, even summer nights can be pleasant outdoors.

Through here, at the turn of the 18th century, journeyed Father Kino to found the San Marcel Vista Mission, where Sonoyta now stands. The good padre is credited with establishing the wickedly waterless way we call the Camino del Diablo (the Devil's Highway). De Anza's group followed this route on their return from founding San Francisco, Mission Dolores, in 1776. A short-cut from Tucson to Yuma, used in the gold rush of '49, it is said to have taken the greatest number of lives of any comparable stretch of land. Wary travellers stayed close to the water courses, and they still do. Although the way is hardly discernible, and all are warned against it, as late as 1940, a party of seven became its victims. In 1942, the monument superintendent happened along just in time to save a party of four

The giant saguaro and cholla also grow in the monument.

Leroy J. Anderson



elderly folk whose car had broken down. A hardy group took the trip in the cool of last winter, with a four-wheel drive vehicle, but spent most of their time getting unstuck.

Four mountain ranges beautify the monument. The Ajo and Santa Rosa mountains are on the east; the Growler Mountains lie along the west; while the Puerto Blanco Mountains, attached to the north end of the Growlers, run southeast across the monument, leaving a passage between their southern end and the eastern ranges. Through this passage, the life of the Sonoran Zone has crept in from Mexico. The Ajo Valley fan, above the Puerto Blanco, drains north, and the La Abra Valley, below it, drains south.

The mountains are forbidding and fascinating, their strata twisted, tilted, or set on end. When the sun is aslant, their colors deepen, the atmosphere itself seeming to intensify them. Arizona's atmosphere has an inexhaustible supply of light filters that provide an infinite variety of effects. Rugged northeast-facing cliffs, like those at Dripping Springs in the Puerto Blancos, give shade and shelter to wildlife, while the west sides of the ranges are in full sunshine for many hours. Natural tanks in the rocks hold rain-water. Some of these are deep, and seldom dry. The heavy rains usually come in July and August. Seven or eight inches a year is normal, and almost all rain falls in two or three downpours. These rains do much harm, as more falls than the sun-heated surface can absorb. Erosion is excessive.

The geologist will find here an almost untouched region for research. Volcanic action probably faulted the ranges into existence. The Ajo Range is about 25,000,000 years old, and it contains the monument's highest peak, Santa Rosa, nearly 5000 feet in elevation. The valleys were filled with sediment a million years ago, and are now cut by numerous washes. Arizona is the archeologist's paradise, yet, strangely, there has been little or no archeological research in this part of the state.

A fine stand of organ pipe cactus is close to the highway, two miles north of headquarters. Hikers can find better stands. The southern slopes around Pinkley Peak or Sweetwater Pass, for instance, have large forests of them. This is a night-blooming cereus, each white flower, delicately tinged with lavender, lasting barely more than through one night. Although the monument is named for this plant, which is found nowhere else in the United States, the name seems too selective. The monument's entire biotic community is unique. It is the best unspoiled desert area remaining in our country, and the proposal to rename it "Arizona Desert National Park"¹ is more appropriate.

Sinita cactus, called the whisker cactus because of the whiskers at branch ends, is also peculiar to this region. It is not as tall as the organ pipe, and its branches extend from clumps above ground. It prefers the lower land along washes farther south.

The Mexican jumping bean and the elephant tree are two more oddities found in the monument. Two cactus species, formerly credited to Mexico only, recently have been identified here.

The rarest animal in the reservation is the desert bighorn sheep, which inhabits the high mountains. Doves of desert wild hog, the collared peccary or javelina, flourish here. The pronghorn antelope has difficulty competing with cattle for the meager forage. Several varieties of deer are seen, and that raccoon relative, the coati-mundi, lives here. Badger, cougar, wolf, ringtail, bobcat, fox and skunk complete the list of larger animals.

The birds are a yearlong delight. Some, such as the Gambel quail, and the cactus wren, which builds its nest low in the cholla

¹ *Editor's Note:* No national park or monument bears the name of the state in which it is located. To rename this area the Arizona Desert National Park would set a somewhat undesirable precedent. Since the monument preserves part of the Sonoran Zone desert, most of which lies south of the border, a more appropriate name might be Sonoran Desert National Monument.



Rugged Canyon Diablo is typical of the monument's scenery. Several large plants of organ pipe cactus are growing on the ledge at right.

Photographs by
William Supernaugh

Organ pipe is a night-blooming cereus, each white flower, delicately tinged with lavender, lasting barely more than one night.



cactus, are permanent residents. Some species are winter visitors. They include the lark bunting, which is black, white, and brown; and the plaintive but friendly Gambel sparrow. Others come in summer—the startling black and yellow oriole, and the white-winged dove. Arizona birds are many and all individual. Most of them are attractive in appearance, highly colored or boot-polish black. Some, the thrasher, for instance, are dull brown birds, but unequalled singers. It is fun to watch the gnatcatcher. The phainopepla, black, with an upswept hairdo, shows white when he flies. The blackbird wears red epaulets and has a voice like a rusty ratchet-wheel. The person whose only interest is birds could ignore all else here and still find it worth a trip from as far away as Maine, for the monument's check-list numbers about two hundred species.

The public is becoming more aware that snakes, lizards, and insects are seldom harmful, and often gorgeously patterned. To be sure, it is a good idea to learn how to proceed in rattlesnake country. The rattler is not public enemy number one here; the small skin-colored scorpion has that distinction. The Gila monster looks like a beaded bag and, although he has a poisonous bite, he is too sluggish to chase anyone. People chase the chuckawalla between the rocks to watch him inflate. The desert tortoise seems to personify the ancient but live desert.

The entire region has been prospected and mined since earliest time. Ore was freighted to the coast and shipped to Wales, while the rich deposits lasted. Ajo was the site of the first mining company incorporated in the territory, and is worth a visit. Within the monument, there are some old mines, but only one is being worked today. Four years after establishment of the monument, it was opened to prospecting. It has been prospected so intensively that the absence of activity would indicate that nothing has been found.

One thing is true of nearly all our na-

tional parks and monuments: We did not place them under protection early enough. Four people held previous life-time permits to graze cattle in this monument, and these permits are respected by the Department of the Interior today. The overgrazing by a thousand head of cattle is deplorable. In dry years there are no wild flowers for visitors to see, and none to reseed; they are all eaten. Mesquite trees are damaged in the cattles' quest for beans. There is no remedy for this except to buy the grazing rights. This matter might receive more attention if the area were redesignated a national park. Representative Patton's bill H. R. 6234, 81st Congress, second session, would redesignate the area a national park, and put a stop to prospecting. As a national park, the area might receive sufficient appropriation for campground improvement. In 1949, 123,000 people checked through at the port of entry, many probably interested only in reaching the Gulf. Nearly 2500 camped in the monument, and figures for 1950 likely will show twice as many.

The Executive Committee of the National Parks Association concludes that if more people are attracted to the area and inclined to stop, they will destroy the wilderness values, trample the flora and scare away the fauna. Those of us who have camped here at the most popular season, and met no one while prowling in hope of seeing animal, reptile, bird or insect, believe the area can absorb many times its present number of visitors without endangering the scientific value of the preserve.² The Sierra Club believes that national park status gives the stronger protection that these 328,000 acres deserve. We are fortunate to have this generous piece of desert wilderness remaining for our enjoyment and study.

² *Editor's Note:* The National Parks Association regards Organ Pipe Cactus National Monument, with its superb exhibit of Sonoran desert flora, as ideally suited to its present status as a national monument. The Association does not believe that to acquire private inholdings, to put a stop to mining and get adequate appropriations for the area, it is necessary to change its status.

THE 1950 FOREST FIRE RECORD

By L. F. COOK, Assistant Chief Forester
National Park Service

THE National Park Service fire record for the first ten months of 1950 presents contrasts in accomplishments and conditions. During the year, fewer fires have been reported than normally, but the total area burned—34,000 acres—exceeds that of any year since 1929. Fire weather conditions ranged from the mildest in many years in the northern Rocky Mountains and Pacific Northwest regions, through generally normal or subnormal hazard in the east and lake states, to the most critically long and severe season in more than a decade in California and parts of the Southwest. Southern Florida experienced a long and severe period of fire destruction during the spring.

The most encouraging aspect of the fire record for the year is the very substantial reduction in the number of man-caused fires of practically all kinds. Despite the record breaking use of park areas by more than 32,000,000 people during the year, only 159 man-caused fires have been reported. The 1940-1949 average number was 234 such fires annually. Intensive fire prevention programs and increased public awareness of the hazards appear to be making headway.

The 136 lightning fires reported this year is slightly higher than the previous decade annual average. These were reported mostly from park areas in California and the Southwest, where very severe lightning hazard conditions prevailed, but despite the large numbers of practically simultaneously caused fires, nearly all were confined to small size.

In contrast to the fewer man-caused fires, the area burned by these fires exceeded greatly the losses from lightning fires. The large total burned acreage inside the national parks and monuments is attributable

chiefly to several fires which entered the new and still undermanned and inadequately equipped Everglades National Park, Florida. During a long period of extreme drought in April and May, when fires burned over vast areas of lands in the vicinity, several already large fires entered the park from the outside or started on private lands inside. These fires burned 31,565 acres inside the park, including 14,922 acres of forest land and 16,643 acres of grassland. During the same period, at least twelve fires, which covered more than 90,000 acres, were kept from entering the park largely through the efforts of the park staff. For the first time in history, large Everglades fires were controlled without the aid of rain. In addition to the Everglades fires, there was a 548 acre incendiary fire in Shenandoah, a 550 acre lightning fire in Saguaro National Monument and a 650 acre lightning fire, which started outside and entered Yosemite National Park, burning 400 acres inside. All other fires inside the parks and monuments were held to less than 300 acres. Fifty-seven percent of all park fires reported to date (December 1) during 1950 were held to less than a quarter of an acre or less.

Intensive training, organization and planning of an effective organization for the protection of National Park Service areas continued to receive high priority and attention throughout the year. Service personnel and equipment were of considerable assistance to other conservation agencies on outside fires, and excellent cooperation was, in turn, received from them.

THEADOR McCARREL

The first fatality in more than a decade, resulting from forest fire fighting on national park lands, occurred during 1950.

Seasonal Fire Control Aid Theodor McCarrel, stationed in the remote Jones Hole section of Dinosaur National Monument, attacked a forest and brush fire and without assistance persisted against great difficulties in preventing the fire from spreading through the canyon until help arrived

twelve hours later. As a result of overexertion and breathing smoke from burning poison oak, he contracted pneumonia and died twelve days later. Mr. McCarrel is being awarded, posthumously, the Department of the Interior Distinguished Service Medal.

NO PERMIT FOR SAN JACINTO TRAMWAY

On November 1, your Association was informed by the Department of the Interior that the Office of the Solicitor had ruled that the Act of March 3, 1899, does not authorize the Secretary of the Interior to approve construction of the Mount San Jacinto tramway. It was under this Act that the Mount San Jacinto Winter Park Authority, on September 2, 1949, filed its application for a right-of-way for its proposed aerial tramway. (For the wording of the Act, see *Mount San Jacinto Tramway*, page 112, in the July-September 1950 issue of the NATIONAL PARKS MAGAZINE.)

The Solicitor's ruling must not lead to complacency on the part of the wilderness preservationists. It must not be misconstrued as representing a final victory. The ruling places the problem back on the U. S. Forest Service's doorstep; the Winter Park Authority must now find another source of federal sanction for its engineering stunt; and this gives the tramway's opponents additional time to strengthen their forces.

Richard M. Leonard, Secretary, Sierra Club of California, in a telegram to Secretary of the Interior Oscar L. Chapman, dated October 28, says that he believes that President Truman's order forbidding construction for amusement purposes obviously applies to the tramway. If Mr. Leonard is right, then final action might be delayed indefinitely, and that would give the preservationists even more time to reinforce their opposition.

OPPOSES DINOSAUR DAMS

National Parks Association
Washington 6, D. C.
Gentlemen:

Craig, Colorado
November 24, 1950

It was heartening to me to read your article in the October issue of NATIONAL PARKS MAGAZINE regarding the proposed dams in Dinosaur National Monument.

In my own small way, I have been fighting the dams ever since they were first mentioned. My own people here do not seem to be able to look to the future, to consider the effects after the actual construction is finished. They look forward to the period of prosperity that would come while the dams are being built . . . the spending of huge sums of federal money; they believe that the recreation would be fine with the big lake established.

I feel that the tourist attraction would be much greater should just a small amount of money be spent on highways and trails to make the monument more easily accessible to our citizens. I know whereof I speak. I spent a month exploring those canyons with a pack train, in 1921, and feel that the public has little idea as to the wonderful series of attractions that await them . . . something that cannot be found elsewhere in these United States.

Cordially,

L. S. McCANDLESS.

RUNNING WILD

By NATT N. DODGE, Chief Naturalist
Region Three, National Park Service

FOOTSORE from the long day's hike, and tired from the unaccustomed weight of our bulky packs, we stopped on the rim of the arroyo to catch our breaths and to scan the boulder-strewn bench, below, where our contour map showed there should be a small spring or seep. Jutting far out into the Grand Canyon, the huge peninsula called "The Great Thumb" blocked our view to the west. Its shadow fell across the maze of cliffs, talus slopes, and steep-walled arroyos forming the upper walls of the canyon, which fell precipitously away from the rim far above us, to the broad, gul-
lied bench, The Esplanade, along which for three days we laboriously had made our way.

A dozen miles to the north, beyond the awesome gash of the inner gorge, filled with the gloom of premature evening, rose the

opposite wall of the canyon flooded with the golden light of late afternoon. Etched in clear relief by the heavy shadows on their eastern slopes, the massive promontories, islands and pinnacles stood out from the north rim in bold perspective. From the deep gloom of the inner gorge, like booming surf along a fog-shrouded shore, ascended the muted roar of the imprisoned Colorado River lending a sinister undertone of background music to the unworldly scene. It was a never-to-be-forgotten moment, inspiring even to the three rangers, who now were concerned about finding a comfortable spot to spend the night.

Picking our way down the steep, rocky slope of the arroyo to the small area of level ledge, the three of us squirmed out of our heavy packs, and scanned the area

Burras may be appealing creatures, but when running wild in the semi-arid parks and monuments, they compete with native mammals for feed.

National Park Service



around for some sign of the spring. A muddy spot at the base of the ledge was the only sign of moisture, the soil cut and churned by a myriad of small hoofprints. The spring, on which we had counted for camp water, had been trampled out by wild burros! Our two full canteens, often cursed because of their dragging weight, suddenly became precious, well worth all of the energy expended in lugging them.

Camp was made by the simple procedure of building a fire and unrolling our sleeping-bags. Canned hash and beans were heated, and by the time darkness had blotted out our surroundings, we were trying to find soft spots on the "bedrock" beneath our sleeping-bags. Only the sullen roar of the distant river, waxing and waning as the evening breeze freshened or died, broke the stillness of this canyon wilderness.

My thoughts were interrupted by Russ, senior ranger and chief-of-party, planning aloud the next day's activities. The purpose of our expedition was two-fold: First, to check the condition of plant and animal life and determine if there were any activities of mankind going on in the area. Second, to eradicate any wild burros which we might encounter. For this, each of us carried a rifle. We were making one of the rare ranger patrols through this relatively inaccessible part of Grand Canyon National Park, far to the west of all rim-to-river trails, except that to the Havasupai Indian Reservation.

At some time during the past century, and before the Grand Canyon was made a national park, pack burros had escaped from, or had been freed by, prospectors within the canyon. During the intervening years, they had spread, gradually, until numerous bands of them occupied much of the inner-canyon terrain. Because these rugged, prolific little donkeys are native to the arid areas of northeastern Africa, they find the semi-desert conditions within the Grand Canyon quite acceptable. The National Park Service paid little attention to these insidious exotics until several mule

trains, carrying visitors and supplies from rim to river over the Bright Angel and Kaibab Trails, had been stampeded. Fortunately these incidents occurred without serious injury to any of the riders. These stampedes brought National Park Service officials to a sudden and rude awakening. For some unknown reason, mules are excited by burros, and stampede when they encounter their diminutive relatives. Bands of feral burros, therefore, not only constituted a serious menace to the safety of mule trains, but they were becoming so numerous that they were destroying the vegetation and scarce water-sources upon which the native animal life of the canyon depends. The rare and magnificent desert bighorn sheep was one of the species seriously affected. Something had to be done to control these wild burros whose numbers, within the canyon, were estimated to run into the hundreds, perhaps thousands.

National park ranger staffs always have been notoriously undermanned, and, in this characteristic, Grand Canyon was, and is, no exception. To provide and equip a small army of men to comb hundreds of square miles of rugged, trailless terrain, and find the numerous bands of shy, secretive burros in the canyon's labyrinth, would have been extremely difficult and costly. With a permanent ranger force of less than ten men, all occupied with protective duties and service to thousands of visitors on both rims, it was possible only to make sporadic efforts to reduce the number of burros ranging in the immediate vicinity of the main trail.

Soon after these control activities started, an unexpected problem developed. Kind-hearted sentimentalists heard that rangers in Grand Canyon National Park were "wantonly shooting burros," and raised a storm of protest. Because, to the prospector, the burro is not only a patient beast of burden, but assumes the role of a companion and friend during months of lonely sojourn in the desert, it has become, in the West, a symbol of companionship and selfless service. In some localities, under cer-



National Park Service

Dead mesquite and denuded desert in Organ Pipe Cactus National Monument are the result of overgrazing by domestic stock.

tain conditions, shooting a man might conceivably be considered a lesser crime. Burrophiles throughout the Southwest set up such a howl that, for a time, the burro control project was stopped. As time passed and the burro menace to mule trains again became serious, control measures which could be combined with other inner-canyon ranger activities were undertaken and have been continued up to the present, without publicity. It was while engaged on an inner-canyon patrol that the party of which I was a member made a dry camp on The Esplanade near the southeastern base of The Great Thumb.

"If we had found the spring," Russ was saying, "we'd base here and spend tomorrow scouting around seeing if we could spot the band of jacks that made all these tracks. But, with only a day's supply of agua, we can't risk a layover. So, we'll mosey along in the morning. The chief said he thought there was a seep under the Coconino near the head of Forster Canyon, so we ought to find water along the floor of that canyon. When we get into it, we can do a little exploring both ways."

"Oh me!" groaned Andy, the third and least experienced member of our party. "I sure could use a day without that blasted pack. Damn those burros, anyway! If they hadn't tramped out the spring, I could leave that pack in camp for a whole day."

"What," chuckled Russ, "tired of that pack already? Weren't you the guy that begged the chief to let you come along on this patrol? Seems to me I remember you saying something about wanting to get away from the noise and distractions of modern civilization, and that you'd rather hunt burros than herd dudes."

"Never mind," grunted Andy, "from the rim, this canyon country didn't look so dad-burned rough. Neither did ten days' groceries weigh so much on the store shelves as they do on my back, especially when I have to carry my bed on top of them. Anyhow, I guess I can take it. What I'd like to know right now," he continued, "is this wild burro problem confined to Grand Canyon or are other national parks infested with the little devils? How about other domestic animals, such as horses and cattle? Do they go wild, too,

and cause trouble by competing with the native wildlife for food and water?"

"Now listen," objected Russ. "I'm just a ranger, not a wildlife expert, and I don't know much about the so-called feral animal problem. I've ranged in only three national parks and a couple of the monuments, and there are more than fifty units of the national park system in the greater Southwest alone—the country where burros were used in the early days. In my experience, I've found that horses and cattle, when they do run wild, are not as difficult to control as burros. Where they are present, they are more of a nuisance to campers than a menace to native wildlife. However, they do offer serious competition to wildlife in areas like Organ Pipe Cactus National Monument, where the Service is obligated to issue grazing permits. This is especially true in drought years when inadequate forage and drying up of springs and waterholes put this competition on a life-and-death basis."

"About burros," Russ continued, "I do know that the boys at Bandelier National Monument, over in New Mexico, and at Death Valley National Monument in California-Nevada, have burro troubles much like ours here at Grand Canyon. At Big Bend National Park in Texas, and at Organ Pipe Cactus National Monument in southwestern Arizona, the problem is complicated by Mexican stock, including horses and cattle as well as burros, which wander across the unfenced international boundary. Right here in Grand Canyon we have at least two small bands of wild horses. Neither cattle nor horses have the ability to thrive and reproduce in arid, sparsely-vegetated country as do the tough little burros. Since the National Park Service is charged, in the Congressional Act of August 25, 1916, with 'conserving the scenery, and the natural and historic objects, and the wildlife therein . . .' we can't sit back and let the burros run off or starve out the native bighorn and other forms of wildlife for whose protection the Service is held responsible."

"I know what you mean," I cut in. "Down at Casa Grande National Monument, between Phoenix and Tucson, we had quite a bit of trouble with dogs. That monument is small, only 472 acres, and is entirely surrounded by farmed land. Desert animals, particularly cottontail and jack rabbits, are thick on the monument and form an irresistible temptation to dogs living on the nearby farms and in the town of Coolidge. These dogs have great sport, both as individuals and in packs of from two to a dozen, in invading the monument to chase rabbits. The monument superintendent is often embarrassed by visitors who come bristling up to him with a report that a rabbit scurried across the entrance road in front of their car with several dogs yapping in hot pursuit. 'Why do you permit such things to go on in a national monument?' they de-

A deep trail in Big Bend National Park shows how abundant are feral burros there.

National Park Service



mand. Yet it is mighty poor public relations to shoot your neighbor's dog, and, so far, the superintendent hasn't been able to teach the dogs to obey the 'no hunting' signs posted along the monument boundary. Of course, the dogs haven't established residence at Casa Grande as have the burros here in the Grand Canyon, but they certainly have 'reverted to the wild state' temporarily, at least."

"The dog problem is bad at Canyon de Chelly National Monument over in the Navajo Reservation," commented Russ. "The superintendent has quit worrying about it because the Indians there are a part of the natural scene. You can't have Navajos without sheep, horses, and dogs; so the native wildlife just has to take a beating, I guess. It's one of those cases where the Service is between two fires, and gets scorched on both sides."

"I hadn't thought of dogs," commented Andy. "I imagine housecats would raise havoc with the small birds and rodents if they 'went native' in a national park or monument."

"You're telling me," grunted Russ. "There's not a park or monument in which I've worked but what I've shot from one to a hundred wild housecats. In almost any chief ranger's monthly report, you'll find the notation: 'eliminated so-many feral housecats this month.'"

"I hear that the boys at Big Bend have seen some feral goats back in the Chisos Mountains," I remarked, sticking in my oar again. "I suppose goats could become almost as much of a menace as burros if they got established in a national park."

"Yes, they could and they have—in Hawaii National Park," Russ agreed. However, I don't believe that there is much chance of feral goats getting a foothold in Big Bend, where coyotes and cougars will surely clean up the strays left from the large bands of sheep and goats that ranged the area before it was made a national park. On the islands, the goats have no natural enemies, and they have taken over

in some places, but I think that our native predators in the Southwest will prove to be too much for them. Now burros, they're smart, they can fight, and they are well able to take care of themselves. Domestic sheep and goats are pretty helpless without a man around to look after them."

"Huh," interjected Andy, "that gives me a new idea. What about these new 'game' animals such as Chinese pheasants, Chukar partridges, and Kurile sheep that have been introduced? Is there any possibility that they may invade the national parks and monuments? Have you any ideas on that, Russ?"

"Pheasants have become pretty well established in the Southwest and since they are naturally birds of the open fields and farmlands, they don't find conditions in many of the national parks and monuments to their liking. Thus far, I have heard of no invasion of any National Park Service areas by Chukar partridges. Kurile sheep reportedly are just getting started, but I think our native predators will probably keep them under control if they do invade the few national parks and monuments where there is suitable habitat. However, there is always danger that these introduced species may bring diseases or parasites that will run rampant among native forms that have not developed resistance. Domestic sheep using the same water sources as Rocky Mountain bighorns infected the native species with diseases and parasites that caused heavy losses in the area including Rocky Mountain National Park."

"Oh, another question," interrupted Andy. "What about the buffalo up at that national monument near Grand Junction, Colorado? I read an item in the newspaper a year or so ago that told about the National Park Service killing some of those buffaloes and giving the meat to the Indians. How come?"

"Well, that's still another problem, Andy. The buffalo at Colorado National Monument constitute more of a large-scale zoo than a wild herd, and they certainly cannot be classed as domestic animals that have

become wild. However, since buffalo, or American bison, are not native to the general area in which Colorado National Monument is located, they actually are exotic animals and, under present National Park Service policy, they have no business on the monument. However, they became established there in the days when the Service's wildlife policies were not as clearly defined as they are now, and it didn't take long for them to overgraze the limited range. The only solution, if the herd is to remain there, is to keep the numbers within the carrying capacity of the range, which the Service believes to be about twenty head. Incidentally, the Service is greatly handicapped in its wildlife work by lack of wildlife and naturalist personnel to carry on urgently needed studies, among which is that of determining carrying capacity of various ranges. In addition to the job of keeping the herd of buffalo at a maximum of twenty head, the boys at Colorado National Monument are plagued with the public-relations problem that the big animals cause when they break out of the monument, as they frequently do, and raise the devil in the orchards and farmlands of the neighborhood. Imagine getting up some morning and looking out of your window to see a shaggy old buffalo bull drinking out of your fish pond."

"Speaking of fish ponds reminds me," I chipped in, "domestic fish can run wild, so I learned recently. Somewhere I read about a fellow who was using live goldfish for bait, and when he left the lake he threw all of his unused bait into the water. In a few years, the goldfish had taken over the pond, which had to be poisoned and

restocked. Does that sound fishy to you, Russ?"

"Not at all! Fishing regulations of the Service provide that no live bait shall be turned loose in park waters, for just that reason. Animals that live in water operate under much the same natural laws as govern those that live on land or in the air. Feral fish may be just as destructive to the habitat and consequently just as much a menace to the native fish population as feral mammals or feral birds to the furred and feathered wildlife of a national park or monument. But listen, you guys; I'm no wildlifer, so lay off the questions. Besides, it's getting late and Andy needs to get some sleep if he's going to lug that pack tomorrow."

As I shifted position to avoid a bulge in the unyielding mattress of Hermit Shale under my bed, and re-rolled my coat-pillow to get a stray button around on the under side, I could hear the faraway monotone of the Colorado River, singing at its work of cutting the Grand Canyon just a little deeper. Stars blazed from the infinity of sky, and I could make out the rim of the canyon to the south and high above me.

As the roar of the river softened, the stars dimmed, and the high spot under my left shoulder blade gradually softened under the influence of approaching sleep, I was aroused by a strange sound drifting across the brush-covered flats of the Esplanade. Fully awake, I raised myself on one elbow and listened intently. Ah, there it was again, unmistakable this time—the aw-eee aw-eee aw-ee aw-ee-aw—midnight serenade of a wild burro. Was he giving us, the National Park Service's burro control, the donkey laugh?

The Geological Survey, noted for its superbly fine map-making, has produced a new map of Great Smoky Mountains National Park. A topographic map with shaded overprint showing the mountains in relief, it is scaled at one inch to two miles, with contour intervals at 100 feet. On the reverse side are diagrams, panoramic sketches and botanical drawings giving a glimpse into the park's geology, geography, flora and fauna. A contour edition has been prepared without the relief overprint. You can purchase a copy by sending 40 cents to The Director, Geological Survey, Washington 25, D. C. Specify whether you want the relief or the contour edition.

I. U. P. N. MEETS IN BRUSSELS

By RICHARD W. WESTWOOD, President
American Nature Association

THIRTY-FOUR COUNTRIES were represented at the Second General Assembly of the International Union for the Protection of Nature held in Brussels, Belgium, October 18 to 23. This was the first working meeting of the Union, the First General Assembly at Fontainebleau, France, in 1948, (See *The Birth of a Union*, by Harold J. Coolidge, in NATIONAL PARKS MAGAZINE for April-June 1949) having been devoted to the perfection of the organization of the Union and drawing up of plans for its activities.

In his report to the assembly, Jean-Paul Harroy, Secretary-General, stated that four countries—Switzerland, Luxemburg, Netherlands, and Belgium—have adhered to the constitution of the Union. Seventeen public administrations and services, three international organizations and fifty-two national organizations, or a total of seventy-two, were founding members. These included fourteen organizations in the United States. Later, at the Brussels sessions, the assembly accepted applications from additional organizations, bringing the total of supporting groups to 115, and the total from the United States to eighteen.

Outstanding activity of the Union during its first two years was the International Technical Conference on the Protection of Nature held at Lake Success, New York, in August, 1949, (See *Lake Success Recommendations*, NATIONAL PARKS MAGAZINE for January-March 1950) in cooperation with UNESCO, and the publication of the proceedings and papers of that conference. Meanwhile, the headquarters of the Union

in Brussels has been engaged in the task of setting up an international agency administratively and establishing relationships with governments, organizations and individuals on a world basis. Through interim sessions of the Executive Council of the Union, its objectives, within the limitations of available funds, were brought into focus for consideration by the Second General Assembly.

Among the specific projects of the Union now near completion are, (1) publication of a report on the status of nature protection throughout the world; (2) preparation of material for experimental use by teachers and students in the schools of northern Italy; (3) implementation of the Survival Service. The first project is in proof form, and will be a valuable contribution to world information. The second is in the hands of a committee headed by M. Videsott of Italy, and will be completed and printed before the close of the year. The third program implements an educational and action activity in behalf of endangered species, particularly the twenty-seven species listed by resolution at Lake Success. It provides means for immediate action in cases of emergency, as with the brown bear of northern Italy, now dangerously reduced.

One session of the Second General Assembly was devoted to discussion of the Survival Service. This title was applied to the problem of species survival. The object is to provide service in that connection. No one was particularly happy about this title, which is not easily translatable, but it will be retained until a better one can be devised.

Another session of the assembly was devoted to conservation and nature protection education on a world-wide scale. It was agreed that this is basic to the objectives of the Union, and that there are many coun-

Because your Association is a member of the I. U. P. N., we asked Mr. Westwood to represent the Association at the Brussels conference. This he very kindly did, and he gives us here a brief report on the conference.—Editor.

tries where education is lagging behind that of others. After extended discussion, an Educational Commission of the Union headed by Dr. Ira N. Gabrielson was approved, with Dr. Gabrielson to be given a free hand in constitution of the commission and the conduct of its work.

A third session was devoted to the question of nomenclature as applied to areas. It was recognized that there is no uniformity in the definition of national parks, national monuments, refuges and many other kinds of reserves as between countries. A commission was assigned the task of assembling information on all such areas in an effort to bring about a standard classification that would be everywhere understandable.

Many other matters of clarification and detail came up for consideration. For example, the constitution of the Union opens membership to "national organizations." This had been interpreted by the United States delegation, at least, as meaning organizations that were nation-wide in scope and activity. Actually, however, the term applies to any organization or agency within a nation, and any such group is eligible to apply for membership in the Union. A number of organizations in other countries, which are already members, are local in scope but active locally in conservation or in nature protection.

Stress was placed on the importance of what we, in the United States, know as publicity and what is described in Europe as propaganda. It was agreed that much more emphasis must be placed on informing not only the general public, but conservation organizations and agencies of the existence and objectives of the Union. It was voted to establish a small committee of three to direct this activity, and the writer found himself named as one of these.

Dr. Charles J. Bernard of Switzerland was reelected president of the Union. Dr. Roger Heim of France and Mr. Herbert Smith of England were chosen as vice-presidents. Harold J. Coolidge, U. S. A., continues as a vice-president, with his term

expiring in 1954. The assembly voted to accept the invitation of the Government of Venezuela, tendered through its delegate, William H. Phelps, to meet in Caracas in 1952.

The American delegation was composed of Harold J. Coolidge, C. Crane, H. W. Glasen, Victor H. Cahalane, L. A. Walford and Richard W. Westwood.

Personal Estimate

In attempting to evaluate the sessions of the Union, and the Union itself, presently and potentially, it is only proper to say that I believe strongly in the importance of the international approach to world conservation and nature protection problems. I was impressed by the sincerity and ability of most of the delegates present. They were made up both of people with a scientific background and a strong interest in conservation, or in protection of areas and species. Exchange of views and information between leading individuals from the various countries was stimulating.

It seems to me that the Union has now passed from the infant stage of crawling, to the point where it is walking quite sturdily. Its progress will depend on support, both financial and moral. Much has been accomplished on a very modest budget; I was amazed at the way the officers had been able to stretch money and the care with which they have administered it.

While it is quite probable that we in the United States can contribute more to the Union, in experience and know-how, than we can derive from it, there is still much that we can learn. I hope that the number of member organizations in the United States will be increased by applications for membership from many more groups of national, state and local scope; even that state conservation departments will join. We have numerous conservation and nature protection problems here at home, and they must come first, but we need not stop at our borders. The International Union for the Protection of Nature can become a world force.

Seeing the Caribbean National Forest

By HERBERT E. FRENCH, Member
National Parks Association

I DO NOT KNOW just when my wife and I began to think of flying down to the West Indies for a vacation, but we both must have begun reading at the same time the advertisements telling about tropical beaches lined with palm trees, because both came down at once with the same exotic fever.

You see, we live in the stony heart of New York City, and travel daily back and forth to work on the Fifth Avenue bus line. This limited journey gives us a distant peek at the trees of Washington Square each morning, a hasty passing glance at seedy old Madison Square, and the half dozen artificially nurtured elms fronting Rockefeller

Rio Mucato flows through the beautiful Luquillo
Division of the Caribbean National Forest.

H. F. Wadsworth





Herbert E. French

This little boy, sitting patiently for his picture, is dwarfed by the huge tree ferns of La Mina Recreation Area.

Center. The lack of sufficient foliage in our visual diet sends us, as you may well imagine, straight to the woods whenever a vacation or a long weekend comes due.

During the past two summers, we made long automobile journeys around the United States, trips that inevitably wound up in a national park or monument. Returning home refreshed, we could appreciate the words of Sigurd Olson in *Exploring Our National Parks and Monuments*, that the vast open places are "a spiritual necessity, an antidote to the high pressure of modern life, a means of regaining serenity and equilibrium."

As the travel circulars began to collect in our apartment, I was soon astounded to learn of the Caribbean National Forest, and to read that this bit of American national forest had been established nearly a half century ago, in 1904, by President Theodore Roosevelt, pre-dating many of our better known mainland national forests. After we had read a few descriptions of the place, it was difficult to keep from setting out at

once to see the "dense forest of giant ferns, tropical hardwoods, crystal waterfalls, and colorful orchids." Somehow, it had never occurred to me, as perhaps it has not to you, that the United States Forest Service, manages a piece of tropical rain forest away down in the Caribbean.

Surprisingly little general literature has been written on the area. Nathaniel and Elizabeth Britton, ardent and active explorer-botanists, for twenty years made journeys into every corner of Puerto Rico, noting every floral species they observed. Dr. Britton, a founder and the first director of the New York Botanical Garden, was one of the authors of the *Scientific Survey of Puerto Rico and the Virgin Islands*. I read through many of the delightful reports of the Brittons. On each expedition to the island, they spent a few days in the Luquillo Forest Reserve (the earlier name for the Caribbean National Forest), as much for love of the place, I believe, as for scientific curiosity of the "wonderful rain forest of the flat ridge below the summit of El

Yunque . . . the densest vegetation and the most unspoiled by the ravages of man." *Tropical Gardening and Planting*, by H. F. Macmillan (1925, London, Times of Ceylon, Ltd.), though written for the Orient, is recommended by many travelers as the best botanical guide to West Indies flora. This is because many crop trees and plants have been introduced here.

The pioneer Europeans in the West Indies were as ruthless in devastating forests and killing off the inhabitants as were our own

ancestors in North America. The Taino Indians of Puerto Rico soon disappeared, along with the forests in which they had lived. The idea of conservation seems so new that perhaps it is unfair to blame the early settlers for destroying what must have appeared to them a small part of the endless bounty of nature. In any case, four centuries of intensive destruction, or cultivation, whittled Puerto Rico's virgin forests back to a few thousand acres on the most isolated mountain peaks of the island.

A magnificent tropical forest fills Espiritu Santo Valley in the Luquillo Division.

H. F. Wadsworth



There is one almost unbroken line of mountains across the island's center (with about two-thirds of the country in the northern watershed), made up of the Cordillera Central, the Sierra de Cayey, and the Sierra de Luquillo. The peaks are not very high, ranging only from about 2000 feet up to somewhat over 4000. The island's small remnant of virgin forest has remained undisturbed on only a few mountain peaks in the west central range and in the almost inaccessible Luquillo Mountains of the northeast.

In planning the West Indies trip, we mapped out a dozen-island journey that would call for only brief stopovers at each place. I wrote to the United States Forest Service in Washington, as suggested by Mr. Devereux Butcher of the National Parks Association, giving the date when we would be passing through Puerto Rico. I was referred in turn to Mr. Henry B. Bosworth, Director of the Tropical Region, U. S. Forest Service, at Rio Piedras, Puerto Rico.

At our hotel in the heart of old San Juan, there was a message from Mr. William H. Cole, Forest Supervisor, stating that Mr. Ramiro Agosto, Division Assistant, was on duty at La Mina Recreation Area of the forest, where he would be glad to show us about and answer questions. A half hour later, as we were following Muñoz Rivera Avenue, along the Atlantic Ocean side of the city, dawn suddenly broke, within seconds, as it does in the tropics. The vivid pageant of tall palms set against centuries-old fortifications, the surf pounding on the rocks below, and the parade of pink clouds on the horizon, made yesterday's New York office seem worlds away.

The paved highway to the mountains follows the coast as far as Palmer. Then it swings south, and steeply southwest up the valley of the Mameyes River, past the YMCA camp at Barcelona, and past a number of parking overlooks reminiscent of those along the Blue Ridge Parkway. Far below, one sees a number of coffee plantations, and, in the distance, Luquillo Beach

and the blue Atlantic. It is said that every 200 feet of altitude in the tropics, with respect to temperature and climate, is like advancing one degree toward the north pole. Thus, even though one is in the tropics, one enters a sort of temperate zone, simply by climbing.

We passed a few huts, too, where forest dwellers live. The Forest Service reports that more than 30,000 man-days of employment annually go to harvesting the forest products. Peering down over the *cuchillas*, the high ridges, into the *quebradas*, the deep gorges, we saw enormous gray leaves turned over and exposing their whitish under surfaces. The driver explained that these were the leaves of the yagrumo tree, which are turned over by the wind as an indication that bad weather is coming.

All of these tropical mountain sides ooze water like sponges. On Trinidad, when we drove over the mountain road the Sea Bees built, from Port of Spain to Maracas Bay, the water fairly fountained out of the jungle growth beside the car. Here, on the way up to El Yunque, the springs seemed more organized, and there were streams. We passed one immense waterfall named El Coco, that came down softly over a tremendous flat rock wall to which it clung gently.

What with stopping to examine banana trees and waterfalls, we arrived very late in the afternoon at La Mina Recreation area, and there was young Mr. Ramiro Agosto, who had been expecting me all day, and planning to take me about the forest in his pickup truck. Mr. Agosto had been with the Forest Service since the Civilian Conservation Corps program began in 1933, and with La Mina area since its inception, when the roads were built and the pools dug, in 1936. Mr. Agosto liked his work, and he told me so, not once but a dozen times.

There are overnight cabins at \$6.00 a person, American plan, and family-type cabins beginning at around \$7.00, for short-time visitors. Also, the Forest Service has con-



A. K. Thurmond

We passed one immense waterfall named El Coco, that came down softly over a tremendous flat rock to which it clung gently.

structed two mountain roads along which residential lots are renting at \$25 a year.

Mr. Agosto introduced me to a number of the residents, all of whom have constructed their own chalets, all of whom are prominent members of the business community of San Juan, and all of whom are anxious to tell visitors about the place. A professor of the University of Puerto Rico asked us to tea. He showed us his brilliant-flowered garden, clinging along the cliff beside his home.

There are four sharp peaks immediately surrounding La Mina area. El Yunque has a radio relay station and an observation tower on its peak. At the top of The Pinales, 3175 feet, there is simply a stone wall. Luquillo, where the mountain road crosses the divide to go to Naguabo on the south side, is 2470 feet above sea level. The prominent double-topped Mount Britton, named for Doctor Nathaniel Lord Britton, is 3075 feet in elevation. Perhaps the second peak may be considered dedicated to Mrs. Britton, who faithfully collected Luquillo's mosses, lichens, fungi and ferns, while at the same time helping her husband assemble his collections. From the observation tower atop Mount Britton, one can see the Virgin Islands, sixty miles away, and nearer, San Juan, and the entire northeast coast line of Puerto Rico. Speaking of Mount Britton, at the time of its dedication to Dr Britton, in 1934, Dr. J. A. Nolla, Assistant Commissioner of Agriculture and Commerce of Puerto Rico, said it was "as worthy an honor as Puerto Rico has to offer to her best botanist and friend."

Mr. Agosto took me on a walking tour around one of the two swimming pools, enjoyed at the time by a group of boys from San Juan. He showed me an orchid as tiny as your smallest fingernail. El Yunque's forest was full of epiphytes, vines and parasitic plants in such profusion as almost to hide the trunks of the trees in many places.

Forty-foot palms inhabit a large part of these mountain forests. They are considered weeds. Nobody seems to care for these

handsome, tall, elegant trees, and yet to my unaccustomed northern eyes they were the most handsome trees of all. Here for the first time, I heard the strange sound of palm fronds rattling in the breeze like sheaves of paper.

As to the upper reaches of the forest, Mr. Agosto told me of the dwarf forest trees six or seven feet tall, that cling close to the peaks, with practically the same species that down below reach thirty, forty or fifty feet. He invited me to climb with him to visit these stunted, gnarled, moss-grown bare-rooted forests.

There are a few parrots. Visitors sometimes see small flocks flying over, their blue-green plumage flashing in the tropical sunshine. There are also wild pigeons; but little bird life is conspicuous in the tropical forests. The mongoose, which was introduced into Puerto Rico to kill snakes, has destroyed some birds as well. I saw a dead mongoose on Saint Kitts a few days later. Examining the toothy, evil creature, I pitied the young birds.

Congress authorized a forest experiment station in the West Indies, in 1928, but did not appropriate money for it until eleven years later. Last spring, the Forest Service's Tropical Forest Experiment Station at Rio Piedras made its tenth annual report, *A Decade of Progress*. Looking through it, as a layman, made me wish the station had been in operation also during those earlier years. The brief period of careful silviculture is to the centuries of forest destruction, on the island, relatively like the period of man to the age of the earth. It has barely begun.

The station has a tropical forestry library of some 5000 titles. It has the exclusive use of 619 acres in three experimental forests, and access to 76,000 acres of public forest lands ranging from the sea level mangrove forest to the Luquillo peaks, giving a broad scope for the 1533 tests and studies that have already been undertaken in various phases of forestry. Information has been gathered on the 240 tree species of the

Luquillo Mountains, and the 500 arborescent species of the entire island. The Rio Piedras station has become an international research center for tropical forestry. It works closely with the forest services of the other West Indies islands and with the Central American mainland and British and Netherlands Guiana (Surinam). A combined report on the entire area was issued by the Caribbean Commission, in 1947. A quarterly, *The Caribbean Forester*, in English, Spanish and French, is published by the station at Rio Piedras. It is distributed not only throughout the Caribbean, but to sixty-three foreign countries.

The first purpose of the Luquillo forests is to help hold the island's water reserves. A preliminary study indicates that in the montane thicket zone (the gnarled and stunted upper rain forest above 2000 feet) as much as sixty-five percent of the rainfall runs off. On steep forested watersheds, the vegetation holds the soil in place, and the streams are clear. In addition to protecting the island's water supply, the forest area provides land for reforestation. The administration reported, two years ago, that under its artificial reforestation program, plantations six to eight years old were already yielding posts, poles and fuel wood.

The Caribbean National Forest contains about 33,000 acres owned by the federal government in two mountainous areas of Puerto Rico. Besides the Luquillo Division in the northeastern part, which we visited, there is the Toro Negro Division in the central mountains. About 43,000 acres additional are in insular forests, corresponding to state forests in the United States. These are located in various parts of the island.

Up in the rain forest, above 500 feet elevation, common trees are the tabonuco, motillo, roble, guaraguao, ausubo, colorado, cainitillo and laurel sabino. To a northerner, these tropical species seem strange. Tropical logging is still so much in the pioneer stage that we hear little of it. Today, the temperate zone hardwoods, (maple, birch, oak, and so on) represent

about sixteen percent of the world's forests, whereas the mahogany, rosewood, logwood, and other species of the tropics make up roughly forty-eight percent of the world's standing timber.

We often think of the West Indies forests as providing only the precious kinds of woods needed for cabinet making, but this comprises only a relatively small part of their potential use. The Luquillo forests are just a small "reserve," of course; but some day we will be drawing heavily from the more than 260,000,000 acres of similar forest land in the West Indies and Caribbean slopes of Central and South America.

In addition to lumber, the Luquillo forests and plantations yield many other products—bananas, oranges, grapefruit, limes, lemons, avocados, coffee, forage, palm-sheaths for small huts, and vines for basket-making. In 1934, Professor of Tropical Forestry, John C. Gifford, of the University of Miami, wrote that "The forest of the tropics are able to produce almost all the foods needed by man. There is an abundance of nuts, substitutes for green vegetables, many fruits, and some like akee as delicate as calfbrains. There is tree fodder, also beans for cattle. It is a northern mistaken idea that wood is the only product."

In 1906, on one of his early trips into the Luquillos, Dr. Britton regretted that his favorite mountain area was "nowhere readily accessible to visitors, for few care to reach it, either by walking or on horseback, but we may hope that at least the lower levels of the Luquillo Reserve may some day be penetrated by a carriage road." He little realized the immense task the CCC would perform thirty years later. There are now sixteen picnic areas, two swimming pools and eight miles of scenic trails for horseback riding and hiking to the high peaks bordering La Mina Recreation Area. On week-ends, an estimated five thousand people arrive to use the swimming pools, picnic areas, shelters, restaurant, overnight cabins, and to climb the trails. I guess La Mina forest is big enough to absorb its visitors,

for we were there on a week-end, and saw only a dozen or so people. Today the roads are excellent, even though they face the constant destructive work of the rains.

My wife had written to Doctor A. H. Noble, British Consul in Puerto Rico, a friend of a friend, and he was expecting us for tea. Looking out over his garden, I did not know that a few weeks later in New York, I would be reading a report by Dr. Britton saying that "the gardens of the Misses Nobles at Condado afforded opportunity to study a number of species not seen elsewhere." At the tea, seated beside one of

the Noble sisters, I mentioned that we had just come from El Yunque. She immediately revealed a wealth of pleasant memories, then regretfully added, "Ah, but they have built so many roads! Now, if you only could have gone there in the early days, the old Spanish days, when we used to go up with Dr. Britton, from New York. One went then on horseback, through the coffee estates. There was an old Scotsman who used to let us stay overnight at his home. The next day we would climb as far as the horses could carry us, going from there on foot. We would climb . . ."

SAN JUAN NATIONAL HISTORIC SITE

Our National Park Service administers the famous Spanish-built, 16th century fortifications of San Juan, Puerto Rico, as an historic site. Visitors to Puerto Rico should be sure to see them. Included in the reservation are the massive forts of El Morro, San Cristobal and Casa Blanca, in San Juan, and El Canuelo on the opposite side of San Juan harbor. A news release of the National Park Service gives the following information:

Established in 1949, the historic sites are used by the Army, except for El Canuelo, and responsibilities of the National Park Service in handling visitors and in interpretation and related activities, are covered by an interdepartmental agreement.

El Morro, most massive of the fortifications, is on the northwest tip of the island on which the "old city" of San Juan is situated. The massive walls of the fort cover the headland from summit to base. Here, in 1539, a single tower and bastion were constructed, and from these developed ultimately one of the finest examples of fortifications in the New World.

The period of most active construction of the fort began in 1550 and lasted for more than a half century. During that period, the fort was subjected to three major attacks. One by Sir Francis Drake, in 1595, proved so disastrous to the British forces, that the attempt to capture the city was given up. Three years later, British forces, under the Earl of Cumberland, attacking from the rear, succeeded in taking El Morro and the city; but these forces withdrew a month later, stricken by an epidemic in which hundreds died. In 1652, after landward bastions had been completed, the defenders of El Morro withstood a siege by Dutch forces. The invaders sacked and burned the city before taking to their ships.

Construction of Fortress San Cristobal, of the same massive masonry as El Morro, was not begun until 1631, after the destruction of the city by the Dutch had shown its defenses to be inadequate. El Morro and San Cristobal are connected by a fortified wall which formerly enclosed the old city; and all three forts were joined by tunnels.

All privately owned lands within the present boundaries of Everglades National Park have now been acquired, according to a release from the National Park Service. The park area is 1,210,000 acres in extent. Additional lands may be added to bring the park to a maximum area of about 2,000,000. To do this, new legislation will be required.

Afield With Your Representative

An account of the trip to six of the fifteen national parks and monuments by Field Representative Butcher appeared in our October-December magazine. Mr. Butcher here concludes the story of his summer trip to the nine other areas.

THE towering, broken, red sandstone escarpment of Colorado National Monument, aglow in the brilliant sunshine of early morning, loomed along the south side of the green, irrigated land of the Colorado River Valley. With a last look at the high escarpment rim, traversed the day before, another day's journey began.

We traveled west into Utah, turned south and entered the dark red canyon carved by the Colorado. A belt of green cottonwood bottomland ends where the narrow road starts its tortuous windings through the gorges. Sometimes it creeps beneath sheer cliffs; sometimes it clings to talus slopes, or stretches away across rolling red hills in a widening of the canyon. An artist had worked here, and his sculpturing was on a colossal scale. Sandstone cliffs are adorned with bands of bas-relief. Huge figures stand upon massive pedestals. Vertical slabs and shafts are covered with delicate tracery typical of Gothic cathedral architecture. Hours later, we emerged at the little town of Moab.

Not far away, on the desert highlands north of the canyons, is the wonderland of Arches National Monument. All of the following day, under the friendly guidance of Superintendent Bates E. Wilson, we explored as much of the monument as daylight hours would allow. Landscape Arch, a mere ribbon of stone with a span nearly equal to the length of a football field, seems held aloft by an unseen power. Fin Canyon, a mile long, displays a series of narrow slabs set on edge standing a few feet apart and perhaps a hundred feet high. The much photographed Double Arch and the Parade of the Elephants at the Windows Section are amazing.

Cedar Breaks National Monument is

high in the mountains of the Dixie National Forest. Its westward-facing pink cliffs, flooded with the light of the setting sun, is a dazzling subject for the color camera. In the conifer forest along the rim grows the rare fox-tail pine. Here, too, the large white columbine; and moist meadows are filled with fringed gentians looking like bits of sky come down to earth. And there are the pink elephantella, creamy white poison camas and tall stalks of dark blue larkspur. The small yellow-bellied marmot abundantly inhabits the rim country.

We had the pleasure of meeting and talking with Ranger William Krueger, in charge of the monument, and Naturalist Twain Tippetts, on duty at the museum during the day. Your Association's book was on sale at the museum.

The road in the monument is a through route between Parowan and U. S. Highway 89. It is used by trucks and cars traveling between these points, with a lot of fast driving around narrow curves in the monument. Cedar Breaks needs a road of its own for exclusive use of visitors. A solution would be to cut the road at the north boundary, and build a new link around the monument for through traffic. This would have the added advantage of providing one entrance and necessitating but one checking station.

At incomparable Zion National Park, we spent three days. Weeping Rock, the Temple of Sinewava, the canyon trail to the Narrows and Lower Emerald Pool were points visited. At Weeping Rock, or in the canyon below, grow Gambel's oak, hackberry and big-tooth maple, the latter a species new to us. Here, too, were Venus hair fern and a yellow pink columbine. Lower Emerald Pool is fed by two falls from the upper pool.



Devereux Butcher

In the east end of Capitol Reef National Monument, the road follows a stream bed between sheer walls of Navajo sandstone.

These falls plunge a hundred feet from the brink of a ledge, and from the trail that goes behind them, they look like showers of diamonds when the morning sun is upon them. During the visit to Zion, several hours were enjoyably spent in conversation with Superintendent Charles Smith and Park Naturalist Merle V. Walker.

South of the Arizona line, the road to Grand Canyon's north rim passes through Fredonia and crosses a wide sage-covered plain. Along the south side of this plain, rises the Kaibab Plateau, standing like a dark green mesa. As the road climbs onto the plateau, the desert gives way to juniper and piñon pine. Farther along, ponderosa pine becomes dominant, and still farther, the forest is interspersed with trembling aspen, Colorado blue and Engelmann spruce and white fir. Before the rim is reached, one travels through approximately fifty-five miles of this forest—forty miles of it in the Kaibab National Forest and fifteen in Grand Canyon National Park. It is unusually beautiful, particularly inside the park, where cattle grazing is not allowed.

Superintendent Harold C. Bryant graciously invited us to go with him on a trip to Cape Royal and Point Imperial; and we had the added pleasure of being accompanied by Superintendent Sam King of Saguaro National Monument, who was on vacation. From Cape Royal, the entire eastern wall of the canyon is visible. It is broken at two points. From the southeast, the brown-walled canyon of the Little Colorado River comes in; and on the northeast, is the narrow, winding gorge of Marble Canyon, through which the Colorado River enters. The visitor looks down on the vast, treeless plains that stretch away to the Painted Desert, and southward to the San Francisco Peaks, blue in the distance. From Cape Royal, the most prominent feature in the canyon itself is Hayden's Butte, named in honor of Senator Hayden's father who pioneered in this great Southwest country.

The north rim forest is the sole habitat of the rare Kaibab squirrel, which has a

black or dark gray body and pure white tail. It was our good fortune to see four of these fine animals—a mother and three young—and we managed to capture the mother on kodachrome film.

From the Transept Trail, one evening, we watched a thunderstorm. A cloudburst fell on the forest beyond the south rim. It moved northward, the thick veil of rain eventually obliterating the rim and falling inside the canyon. Lightning stabbed the forest, or struck into the canyon's depths, while a sunset made the clouds blaze with color.

The brilliant weather that accompanied us on almost the entire trip, continued at Bryce Canyon. A strong wind blew from the south, and big white clouds drifted across the sky, plunging the canyon alternately in sun and shade with dramatic effect. We took the Navajo Loop Trail down into the canyon, and visited the various overlooks all the way to Rainbow and Yovimpa points.

There is similarity between the erosion formations at Cedar Breaks and Bryce Canyon, but their colors differ. Cedar Breaks has a pure white band at the top, and is otherwise of the most delicate pink. Bryce Canyon also has the white band along the top of its cliff, but the formations below are orange color. Bryce Canyon is much larger, and its escarpment faces east instead of west.

The formations of Bryce Canyon look soft enough to melt completely away in the next downpour. Have you ever wondered how fast the canyon erodes? On page 23 of your Association's book is a picture of the natural arch, which I took in 1934—sixteen years ago. We compared the details in this picture with the details of the arch, and were unable to detect the slightest change.

The road from Bryce Canyon to the little-known Capitol Reef National Monument is 120 miles by way of Escalante and Boulder. It is a narrow, dirt road that winds over high mountain passes and twists down into desert canyons. From the east slope of



Devereux Butcher

Massive Long's Peak, highest point in Rocky Mountain National Park, is seen here across peaceful Nymph Lake.

Boulder Mountain, you look out over the weird rocky desert country that once was suggested to be set aside as Escalante National Monument—the canyons of the Colorado, Escalante and San Juan rivers. To the southeast, you can see Navajo Mountain, near Rainbow Bridge National Monument, and to the northeast, a hundred miles away in a straight line, you can see the La Sal Mountains near Arches National Monument. Southward is Grand Canyon. This entire area, most of it in Utah, comprises what many consider the most scenic region in North America. Capitol Reef is part of it.

Capitol Reef presents so strange an effect upon you that it may haunt you for weeks afterward. Superintendent Charles Kelly very kindly took the time to show us the monument—as much of it as can be seen from the road that runs for twenty miles through its formations. The exhibit consists chiefly of a cliff hundreds of feet high at

the northwest end, with strata tipping downward toward the southeast. The lowest stratum is the dark brown Moenkopi, which, in places is sculptured into bands of the most delicate relief. Next comes the narrow, pale green, shapeless Chinle, topped by the hard, splintered, red band of Wingate. Upon the Wingate, rests the pale Navajo sandstone, often eroded into domes that, in some places, are capped by the rust colored Cretaceous layer. Two areas of strange, fantastic erosion, the Cathedral and Goblin areas, adjoining the reservation on the north, are being considered for addition to the monument. Capitol Reef is known to comparatively few people. This may be because up to now there has been no place for visitors to stay over night. But that has changed. Mr. Fred Mason is completing his excellent Capitol Reef Lodge at the settlement of Fruita, in the monument. And visitors are not obliged to take the rugged

route that we did, but can turn east from U. S. Highway 89 at Sigurd, if coming south, and at Richfield if coming north, and follow a fine paved highway almost all the way to the monument. If you want to see something new and different, go to Capitol Reef.

On August 12, we visited Timpanogos Cave National Monument. The caverns, located in the north side of Mount Timpanogos, are reached by way of American Fork Canyon and a steep mile and a half trail. Superintendent Walker accompanied us up, and then showed us the great courtesy of taking us through the caverns, unencumbered by other visitors—and there were hundreds of visitors that day. The caverns contain some stalagmites and stalactites, but helictites are their most characteristic formations. Ranging from white through pale lemon to orange color, the helictites are usually very slender, many of them smaller than your little finger. They do not always hang vertically, but grow at any angle. Perhaps the most amazing thing about Timpanogos Cave's formations is the fact that when tapped, they give out musical tones. The largest formations produce rich deep notes, and this varies on up to the tiniest helictites, which, if tapped with an object like a key, give out notes like the chimes of a small clock.

The monument's present parking lot is too small. A new, large one has already been built a short distance up the road, but this cannot be used until the new, easy trail is opened. All that is needed is an appropriation to allow completion of the last few feet of this trail. Utah people should urge their senators and representatives to see that this need is met at once.

Dinosaur National Monument, east of Timpanogos Cave, was our next destination. This was described and pictured in our foregoing magazine (see *This Is Dinosaur*), and space need not be given it here.

Trail Ridge Road, the highway that crosses Rocky Mountain National Park, is to be avoided on August Sundays by park

visitors who seek undisturbed nature. Cars move across this highway almost bumper to bumper at the height of the tourist season. This is not to give the impression that there is no wilderness in Rocky Mountain. There are large areas of magnificent mountain wilderness in the park available to those who like to hike or ride horseback.

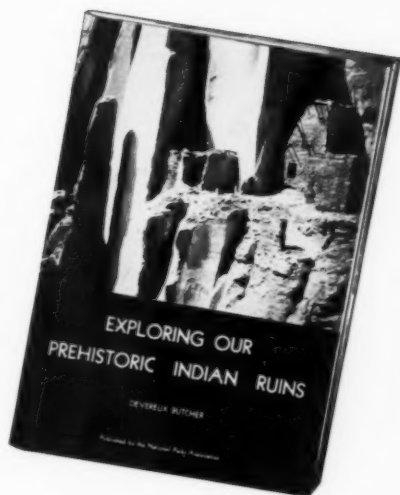
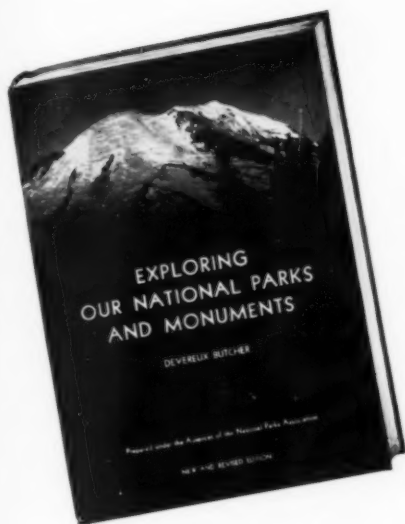
Rocky Mountain is a problem park. It is riddled with private inholdings, particularly along the east and west sides; and the private tract at Deer Ridge may be considered the most troublesome inholding in the entire park system.

Wildlife presents other difficulties. Wolves have been extirpated, coyotes reduced, and mountain lions are rare. These species once held the elk and deer populations to numbers that did not exceed the ability of the land to feed them.

In spite of the hordes of humans, we enjoyed the scenery from Trail Ridge Road. We visited the museums at Fall River Pass and Moraine Park, and noted that your Association's book was on sale at both. We walked the trail from beautiful Bear Lake to Nymph Lake and on to Dream Lake. The striking form of Hallett Peak makes a backdrop for all three, and southward across Nymph Lake is perhaps the finest view of Long's Peak, the park's highest summit. An inquisitive weasel peered at us near Nymph Lake; and in the moist meadows at Dream Lake, grows the attractive little rose crown, a new plant species for us.

From Wild Basin Campground, we walked up the forested valley of the North Saint Vrain Creek. A thunderstorm passed over, and as it moved away, the heavy clouds took on the rare and strange form known as *Cumulus mamatus*.

During our stay at the village of Estes Park, where park headquarters is situated, it was my pleasure to meet and talk with Superintendent David H. Canfield and several members of his efficient staff. To visit these fifteen national parks and monuments, the six weeks loop trip from Denver and back was 3700 miles.



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